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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,313	01/26/2004	Li Xing Wu	12553/102	9414

7590 06/14/2005

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EXAMINER

NGUYEN, KHIEM M

ART UNIT PAPER NUMBER

2839

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/765,313	WU ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Khiem Nguyen	2839	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 15-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. Figures 2-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-7, 15, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (APA) in view of Ameen et al. (5,744,759) and Fedde (3,221,286).

The APA circuit assembly and an inherent method of forming the circuit assembly shown in figures 2-3 and discussed in the background of the instant application disclose a circuit substrate with a first set of circuitry; a bonding pad mounted to a surface of the circuit substrate electrically coupled to the first set of circuitry; a flexible circuit substrate with a second set of circuitry; a connecting

pad coupled to a surface of the flexible circuit substrate facing the surface of the circuit board and electrically coupled to the second set of circuitry. It is noted that the APA circuit assembly lacks a ball of conductive material mounted on the bonding pad; and a clamping device to press the connecting pad to the ball of conductive material.

Ameen et al. discloses circuit substrate 16 provided with balls 22 of conductive material mounted on bonding pads 20.

Fedde shows in figure 3 of his invention that it is old and well known to use clamping devices 301, 302 to press the connecting pads of his flex circuit substrate 303 to the bonding pads of the circuit substrate 310.

Therefore, it would have been obvious to provide a ball of conductive material mounted on the bonding pad; and a clamping device to press the connecting pad to the ball of conductive material for the APA circuit assembly in view of the teachings of Ameen et al. and Fedde. The use of a ball of conductive material would provide for a better electrical connection between the bonding pads and connecting pads. The use of a clamping device would provide for a secure connection between the flex circuit board and circuit substrate without the use of solder.

For claims 4 and 18, Ameen discloses that it is known to use a gold plating/coating 26 (column 2, line 29).

For claims 5 and 19, Ameen discloses solder bump 28 is placed on bonding pads 20.

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Regarding claim 7, Ameen also discloses that his clamping device may comprise any type of clamp known in the art. (column 4, lines 42-44).

4. Claims 2-3 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1 and 15 above, and further in view of Gillette et al. (5,742,484).

The APA in view of Ameen et al. and Fedde circuit assembly as discussed in the previous paragraph rejection does not disclose that the ball of conductive material is comprised of gold or solder as being recited in the above claims.

Gillette et al. discloses that it is well known to use balls 18 of conductive material comprised of either gold or solder (column 2, lines 47-48).

Therefore, it would have been obvious to construct or provide a ball of conductive material comprised of either gold or solder for the APA in view of Ameen et al. and Fedde circuit assembly in view of the teachings of Gillette et al.

It is known that gold and solder material would provide a good electrical connection.

### ***Conclusion***


5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ichimura, Roberts and Perino et al. are further cited to show circuit substrate assemblies.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem Nguyen whose telephone number is 571 272-2096. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TC Patel can be reached on 571 272-2098. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Khiem Nguyen  
Primary Examiner  
Art Unit 2839